

OVERCUP OAK

Quercus lyrata Walt.

plant symbol = QULY

Contributed By: USDA, NRCS, National Plant Data Center & the Biota of North America Program

Alternate Names



Robert H. Mohlenbrock
USDA, NRCS, Wetland Science Institute
@ PLANTS

Swamp post oak, swamp white oak, water white oak

Uses

Wood of overcup oak is brownish, hard, heavy, and strong; it is marketed as white oak primarily for lumber and cooperage but is not consistently valued for quality products because of fire damage and defects from wood borers and heartwood decay following fire injuries. Checking during drying and seasoning often prevents general use even as ties and timbers. In some areas, this species has been avoided in cutting and has increased in dominance at cut-over sites.

Overcup oak is planted to improve wildlife habitat and for bottomland restoration. Ducks, wild turkeys, hogs, white-tailed deer, squirrels, and smaller rodents eat the acorns.

Overcup oak also is planted as an ornamental. The trees can withstand significant flooding and poorly drained soils and are tolerant to drought and cold. In spite of its natural occurrence where periodical flooding is typical, overcup oak grows best on sites with better drainage and soil texture.

Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status, such as state noxious status and wetland indicator values.

Description

General: Beech Family (Fagaceae). Native trees commonly growing to 18–30 m tall, often with a short trunk and open, irregularly rounded crown; bark light gray, becoming furrowed into scaly plates and ridges. Leaves are deciduous, alternate, generally obovate to elliptic-oblong in outline but highly variable, 13–21 cm long and 4–10 cm wide, basally wedge-shaped, with 5–9 deep, rounded lobes, shiny dark green above, usually paler gray-green below and variably hairy, turning red, yellow, or brown in fall. Male and female flowers are borne in separate catkins on the same tree (the species monoecious) on the current year's branchlets. Acorns maturing in the first year, nearly round, nearly globose to broadly ovoid (broadest near the base), 12–25 mm long, with a warty gray cup almost enclosing 2/3 to nearly all of the acorn, with acute scales. Common name from the acorn almost entirely enclosed in the spherical cup.

Overcup oak is a member of the white oak subgroup (subgenus *Quercus*) and hybridizes with other related species, including white oak (*Q. alba*), swamp white oak (*Q. bicolor*), Durand oak (*Q. durandii*), bur oak (*Q. macrocarpa*), swamp chestnut oak (*Q. michauxii*), post oak (*Q. stellata*), and live oak (*Q. virginiana*).

Variation within the species: Variants within the species are not recognized.

Distribution

Native to the Atlantic and Gulf coastal plains from southeastern Virginia to panhandle Florida and westward to east Texas, north in the to Missouri, Illinois, and Indiana, with scattered populations in northern Alabama, central Tennessee, Delaware, and

Maryland. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Establishment

Adaptation: Overcup oak usually occurs on clay or silty-clay flats in first bottoms and terraces of larger streams and rivers. It is also common on the edges of swamps and bayous and in poorly drained depressions or sinkholes. Overcup oak may be dominant and climax in stands with water hickory (*Carya aquatica*) on low, backwater flats and other sites commonly flooded for 30–40% of the growing season. Tolerance to late spring floods results partly from its phenology -- it leafs out a month or more later than most species. Many stands of overcup oak owe their development to tolerance of early season flooding that kills off earlier flushing species.

Overcup oak is relatively intolerant of shade. Suppressed young trees respond strongly to release when the canopy is opened by disturbance.

The heavy, wet, clay soils where overcup oak typically grows restrict root development to relatively shallow depths. Seedlings initially produce taproots, but these are soon replaced by a shallow, lateral root system.

Flowering occurs in (March–)April–May, with appearance of new leaves, sometimes as long as a month after sympatric species and it fruits in September–October.

General: Overcup oak begins to produce seed at about 25–30 years; good crops are produced every 3–4 years. Overcup oak acorns have a unique spongy shell that renders them buoyant. They are disseminated primarily by water, buoyed by a spongy shell. After winter dormancy, they germinate in the spring after floodwaters recede. Good germination occurs on moist soils when acorns are covered by leaves. Seeds germinate profusely beneath complete canopy, but the seedlings succumb or at least die back to the root collar within 3 years unless released. Flooding during the first few growing seasons also produces high mortality of seedlings.

Height growth of overcup oak is slower than many associated species, causing it to be overtopped easily. Maximum age is about 400 years.

Stumps of small trees sprout vigorously but not consistently after top-kill.

Management

Prolonged drought in bottomlands may lead to surface fires that kill overcup oak seedlings and saplings and damage bark of larger trees. Such minor injuries open trees to infection by heart rot fungi. Young overcup oak trees may sprout after top-kill by fire.

Natural reforestation of bottomland oldfields now favors tree species that tolerate dry soils because a large proportion of formerly wet sites are subject to flood control. Since overcup oak is dependent on overflow or floodwaters for seed dispersal, it has to be planted on these sites if its presence is desired. Nuttall oak (*Quercus nuttallii*) is often used to replace overcup oak on sites that have reduced flooding or stream flow.

Cultivars, Improved and Selected Materials (and area of origin)

Please check the Vendor Database, expected to be on-line through the PLANTS Web site in 2001 by clicking on Plant Materials. These plant materials are readily available from commercial sources.

References

Nixon, K.C. & others 1993. *Quercus*. Pp. 445-506, IN: *Flora of North America, North of Mexico*. Vol. 3. Oxford Univ. Press, New York, New York.
<http://hua.huh.harvard.edu/cgi-bin/Flora/flora.pl?FLORA_ID=12395> Accessed September 2000.

Solomon, J.D. 1990. *Quercus lyrata* Walt. *Overcup Oak*. Pp. 681-685, in R.M. Burns and B.H. Honkala. *Silvics of North America. Volume 2. Hardwoods*. USDA Forest Service Agric. Handbook 654, Washington, D.C.
<http://willow.ncfes.umn.edu/silvics_manual/Volume_2/quercus/lyrata.htm> Accessed September 2000.

Sullivan, J. 1993. *Quercus lyrata*. IN: W.C. Fischer (compiler). *The fire effects information system [database]*. USDA, Forest Service, Intermountain Research Station, Intermountain Fire Sciences Laboratory, Missoula, Montana.
<<http://www.fs.fed.us/database/feis/plants/tree/quelyr/>> Accessed September 2000.

USDA, NRCS 2000. *The PLANTS database*. <<http://plants.usda.gov>>. 001106. National Plant Data Center, Baton Rouge, Louisiana.

Prepared By

Guy Nesom

BONAP, North Carolina Botanical Garden,
University of North Carolina, Chapel Hill, North
Carolina

Species Coordinator

Lincoln Moore

USDA, NRCS, National Plant Data Center, Baton
Rouge, Louisiana

Edited 06dec00.jsp

For more information about this and other plants, please contact
your local NRCS field office or Conservation District, and visit the
PLANTS <<http://plants.usda.gov>> and Plant Materials Program
Web sites <<http://Plant-Materials.nrcs.usda.gov>>.

*The U.S. Department of Agriculture (USDA) prohibits
discrimination in all its programs and activities on the basis of
race, color, national origin, gender, religion, age, disability,
political beliefs, sexual orientation, and marital or family status.
(Not all prohibited bases apply to all programs.) Persons with
disabilities who require alternative means for communication of
program information (Braille, large print, audiotape, etc.) should
contact USDA's TARGET Center at 202-720-2600 (voice and
TDD).*

*To file a complaint of discrimination, write USDA, Director, Office
of Civil Rights, Room 326W, Whitten Building, 14th and
Independence Avenue, SW, Washington, DC 20250-9410 or call
(202) 720-5964 (voice or TDD). USDA is an equal opportunity
provider and employer.*